



UNITED STATES PATENT AND TRADEMARK OFFICE

cen
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/825,635

04/15/2004

Ramin Abhari

2003B043B

9004

23455 7590 01/04/2008
EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

01/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/825,635

Applicant(s)

ABHARI ET AL.

Examiner

Katarzyna Wyrozebski

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/12/07; 11/14/07; 10/31/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

In view of applicant's request for continued examination dated 12/12/2007 following office action is non-final. Applicants newly submitted IDS were considered although only a handful of references disclosed functionalized blends of polyolefins. As a result, new rejection has been applied against present claims. Double Patenting rejections were previously overcome by submission of Terminal Disclaimer.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 21, 22, 28, 32, 33-38, 40, 41 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by BEREN (US 6,143,825).

The prior art of BEREN discloses composition for an adhesive, which composition comprises blend of polyolefins (Abstract).

Polymer 1 – polypropylene, which is discussed in greater detail in the specification of BEREN, col. 2-4.

Polymer 2 – high melt strength polypropylene, having branching index less than 0.9. This polymer is also described in more detail in col. 4 of the teachings of BEREN.

Polymer 3 – Graft propylene based polymer, wherein the amount of grafting is in a range of 0.5-5 wt% as disclosed in col. 5. Although BEREN does not specifically disclose properties of the graft polymers, he discloses tradenames such as HERCOPRIME G211, POLYBOND 3000, FUSABOND 109 etc. These polymers are low molecular weight polymers grafted with maleic anhydride (per info from company websites). HERCOPRIME G211 has highest molecular weight disclosed, which is 100,000. Their branching ratios are less than 1.

Modification of propylene polymer – as indicated by the teachings of BEREN, propylene polymer can be grafted with functional compound utilizing peroxide (col. 5) and extruded signifying melt processing. Modifying monomers mentioned in addition to maleic anhydride include acrylic and methacrylic acids, itaconic acid, maleic acid, fumaric acid, cis-4-Cyclohexane-1,2-carboxylic acid, their anhydride, esters or imide derivatives.

Dot T-Peel - as it is known well in the art is a measure of adhesion of coating or adhesive to a substrate. Such property depends on the amount of the modification to the polymer, which in this case is grafting monomer on the propylene polymers. Although the prior art of BEREN does not specifically teach what this Dot T-Peel, such is viewed as inherent property since the amount of grafting monomer in the present invention is in the same range as the amount of grafting monomer in the teachings of BEREN. In addition, the prior art of BEREN clearly teaches that the composition disclosed therein has excellent adhesion since adhesive and substrate are not separable in many examples.

Additives – as taught by BEREN include fillers such as mica (examples) and chromium modified acrylic resin.

In the light of the above disclosure, the prior art of BEREN anticipates claims rejected above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over BEREN (US 6,143,825) in view of KARADINIOS (US 2002/007033).

The discussion of the teachings of BEREN from paragraph 2 of this office action is incorporated here by reference.

Grafting – there are two ways in which propylene polymer can be grafted with maleic anhydride. One method was disclosed in BEREN, which utilized peroxide without solvent and with melt-extrusion. Second, which is obvious variation of the polymer is with use of non reactive diluent or solvent, a method known to one of ordinary skill in the art as suitable alternative.

Process – in the disclosure of BEREN, polypropylene is modified before being incorporated into the composition. However, functionalizing propylene polymers when blended is also viewed as suitable alternative method and therefore obvious to utilize for following reason. The composition comprises polypropylene resins, wherein the entire composition required good adhesion to the substrate. Applying functional group to the blend is also expected to graft polypropylenes and thereby still impart better adhesion properties.

The difference between the present invention and the teachings of BEREN is recitation of other properties of propylene polymer that can be grafted and utilized in adhesive as well as other additives.

The teachings of KARADINIOS have been discussed before in the office action dated 11/6/2006. As mentioned previously the prior art of KARADINIOS discloses propylene based

polymer for used in adhesives which has crystallinity of no more than 15%; Tg lower than -5°C; Mw of 25,000 and 28,000 as specified in examples 3 and 4.

Additives include tackifiers utilized in amount of 1-25 wt % [0049], and flow improved in amount of -20 wt %.

As it was also mentioned, the polymer of KARADINIOS is made by the similar catalyst system as that of the present invention, which is metallocene catalyst or Ziegler-Natta chemistry. Since the structure of the polymer depends on the catalyst system that is utilized to form the polymer, it is examiner's position that the catalyst of KARADINIOS will form propylene based polymer having overlapping isotactic run length, and amount of r dyad. Second reason why these two properties would be within applicant's invention is that they also influence crystallinity of the polymer.

Properties such as melt viscosity are viewed as inherent, since they depend on the structure of the polymer utilized therein.

As it was mentioned before adhesives comprising grafted propylene polymer have better adhesion to the substrate as compared to the adhesive without functionalization.

In the light of the above disclosure it would have been obvious to one of ordinary skill in the art at the time of the instant invention to utilize polymer of KARADINIOS in the teachings of BEREN and thereby obtain the claimed invention. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Linder* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Use of the polymer of KARADINIOS will still provide adhesive with good adhesion property due to presence of grafted maleic anhydride.

7. Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over BEREN (US 6,143,825) in view of WANG (WO 03/033612).

The discussion of the teachings of BEREN from paragraph 2 of this office action is incorporated here by reference.

Grafting – there are two ways in which propylene polymer can be grafted with maleic anhydride. One method was disclosed in BEREN, which utilized peroxide without solvent and with melt-extrusion. Second, which is obvious variation of the polymer is with use of non reactive diluent or solvent, a method known to one of ordinary skill in the art as suitable alternative.

Process – in the disclosure of BEREN, polypropylene is modified before being incorporated into the composition. However, functionalizing propylene polymers when blended is also viewed as suitable alternative method and therefore obvious to utilize for following reason. The composition comprises polypropylene resins, wherein the entire composition required good adhesion to the substrate. Applying functional group to the blend is also expected to graft polypropylenes and thereby still impart better adhesion properties.

The difference between the present invention and the teachings of BEREN is recitation of other properties of propylene polymer that can be grafted and utilized in adhesive as well as other additives.

With respect to the above difference the prior art of WANG discloses composition for an adhesive comprising blend of SPP and APAO (page 10), tackifier in amount of 15-65 wt % plasticizer in amount of 5-30 wt %, stabilizer or antioxidant in amount of 0-3 wt% and optionally wax in amount of 0-30 wt%.

The molecular weight of the APAO is preferable in a range of 10,000-100,000 g/mol (page 13); Tg in a range of -5 to -40°C; Crystallinity less than 30%.

The prior art of WANG discusses stereochemistry of the olefins and its effect on crystallinity of the polymer (pages 3-4). WANG teaches that isotactic propylene polymers are highly crystalline and usually form stiff material having high melting point and high density. Since the APAO has low crystallinity and its Tg is lower than -5°C; its isotactic run length is low (1 or 2 as per figure of on page 4) as a result the r dyad is greater than 80% (page 5).

Properties such as melt viscosity are viewed as inherent, since they depend on the structure of the polymer utilized therein. Branching ratio is viewed as dependent on the amount of the modifying monomer, which as per teachings of BEREN is within the same range as that of the applicant's claimed invention.

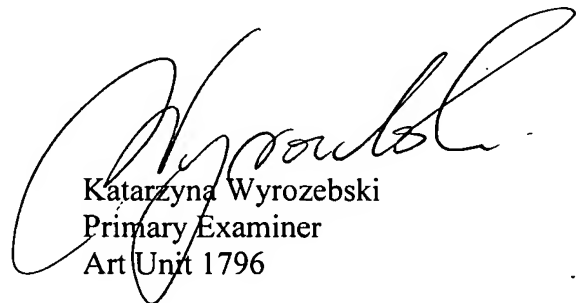
As it was mentioned before adhesives comprising grafted propylene polymer have better adhesion to the substrate as compared to the adhesive without functionalization.

In the light of the above disclosure it would have been obvious to one of ordinary skill in the art at the time of the instant invention to utilize polymer of WANG in the teachings of BEREN and thereby obtain the claimed invention. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Linder* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Use of the polymer of WANG will still provide adhesive with good adhesion property due to presence of grafted maleic anhydride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 8:30 AM-2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Katarzyna Wyrozebski
Primary Examiner
Art Unit 1796

January 2, 2008